

a medical imager configured to scan a patient;
an image processor configured to predict a result of therapy for the patient in response to input of scan data from the scan to a multi-task trained network, and the image processor configured to estimate a dose for the therapy from a regression relating the dose, a time-to-event, and the result, the dose estimated from the regression so that the result is below a threshold probability of failure at a given value of the time-to-event; and

a display configured to display the dose.

12. The medical imaging system of claim **11** wherein the medical imager comprises a computed tomography imager, and wherein the multi-task trained network was trained using a first loss for image features based on handcrafted radiomics and using a second loss for outcome.

13. The medical imaging system of claim **11** wherein the regression comprises a calibration from a cohort used to train the multi-task trained network.

14. The medical imaging system of claim **11** wherein the regression comprises a nomogram relating the dose, the time-to-event, and the result.

15. The medical imaging system of claim **11** wherein the threshold probability comprises a clinician configurable percentage.

16. The medical imaging system of claim **11** wherein the regression is for a histological subtype for the patient.

17. The medical imaging system of claim **11** wherein the dose is modeled as a continuous variable in the regression.

18. The medical imaging system of claim **11** wherein the image processor is configured to estimate the dose as providing the result in the given value for the time-to-event.

19. The medical imaging system of claim **11** wherein the regression is based on estimation of a cumulative incidence function.

20. The medical imaging system of claim **11** wherein the display is configured to display the dose and a physician selected dose with respective estimates of local failure probabilities.

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